

Amendments to the Claims

Claim 1 (Previously presented): A therapeutic pharmaceutical composition for inhibiting tumor growth in humans, comprising:
a mixture of attenuated whole human cells derived from human tumor cell lines, said cells comprising an $\alpha(1,3)$ galactosyltransferase encoding sequence and a plurality of cell surface glycoproteins or glycolipids on which an α Gal epitope is present and wherein said cells are attenuated by irradiation, and
a carrier.

Claim 2 (Currently amended): A therapeutic pharmaceutical composition for stimulating an immune response in humans simultaneously to a plurality of tumor antigens, regardless of their glycosylation state, comprising:
a mixture of attenuated whole human cells from human tumor cell lines, said cells comprising a nucleic acid sequence encoding an $\alpha(1,3)$ galactosyltransferase protein and a plurality of cell surface glycoproteins or glycolipids on which an α Gal epitope is present, so that antigens in the entire cell may be presented to the immune system and wherein said cells are attenuated by irradiation, and a suitable carrier.

Claim 3 (Previously presented): The composition of claim 1 wherein said tumor lines are selected from the group consisting of large cell carcinoma, squamous cell carcinoma, ascitis adenocarcinoma, pleural effusion carcinoma, metastatic adenocarcinoma, clear cell carcinoma,

ovarian adenocarcinoma, ovarian teratocarcinoma, malignant melanoma, colorectal carcinoma, colorectal adenocarcinoma, and colorectal adenocarcinoma grade II cell lines.

Claim 4 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are derived from A549 cells.

Claim 5 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from NCI-H460 cells.

Claim 6 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from NCI-H520 cells.

Claim 7 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from MCF-7 cells.

Claim 8 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from BT-20 cells.

Claim 9 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from HPAF-II cells.

Claim 10 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from PANC-1 cells.

Claim 11 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from ASPC-1 cells.

Claim 12 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from BxPC3 cells.

Claim 13 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from IGROV cells.

Claim 14 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from ES-2 cells.

Claim 15 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from NIH:OVCA3 cells.

Claim 16 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from COLO829 cells.

Claim 17 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from G-361 cells.

Claim 18 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from HCT-116 cells.

Claim 19 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from COLO205 cells.

Claim 20 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from LoVo cells.

Claim 21 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from WiDr cells.

Claim 22 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from DLD-1 cells.

Claim 23 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from HCT-15 cells.

Claim 24 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from SW620 cells.

Claim 25 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from SW480 cells.

Claim 26 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from SW1116 cells.

Claim 27 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from HT-29 cells.

Claim 28 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from FHC cells.

Claim 29 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from CCD841CoN cells.

Claim 30 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from PC-3 cells.

Claim 31 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from LNCaPFGC cells.

Claim 32 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from MDAPca2b cells.

Claim 33 (Previously presented): The composition of claim 1 wherein said attenuated whole human cells are from DU145 cells.

Claim 34 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line A549 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 35 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line NCI-H460 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 36 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line NCI-H520 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 37 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line MCF-7 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 38 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line BT-20 a retroviral

vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 39 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line HPAF-II a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 40 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line PANC-1 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 41 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line ASPC-1 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 42 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line BxPC3 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 43 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line IGROV a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 44 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line ES-2 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 45 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line NIH:OVCA3 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 46 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line PA-1 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 47 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line A375 a retroviral

vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 48 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line COLO829 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 49 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line G-361 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 50 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line HCT-116 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 51 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line COLO205 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 52 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line LoVo a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 53 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line WiDr a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 54 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line DLD-1 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 55 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line HCT-15 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 56 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line SW620 a retroviral

vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 57 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line SW480 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 58 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line SW1116 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 59 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line HT-29 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 60 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line FHC a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 61 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line CCD841CoN a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 62 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line PC-3 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, electing for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 63 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line LNCaPFGC a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 64 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line MDAPca2b a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 65 (Previously presented): The composition of claim 1 wherein the cells of said composition are prepared by introducing into tumor cells from tumor cell line DU145 a retroviral

vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope and attenuating said cells by irradiation.

Claim 66 (Original): The composition of claim 1 further comprising an adjuvant.

Claim 67 (Previously presented): A pharmaceutical composition for inducing an immune response against tumor cells in a human comprising:

a mixture of whole human cells, wherein said cells are attenuated by irradiation, said cells comprising an α 1,3 galactosyl transferase encoding sequence and a plurality of cell surface glycoproteins or glycolipids on which an α -galactosyl epitope is present, and wherein said cells are derived from tumor cell lines selected from the group consisting of A549, NCI-H460, NCI-H520, MCF-7, BT-20, HPAF-II, PANC-1, ASPC-1, BxPC3, IGROV, ES-2, NIH:OVCA3, PA-1, A375, COLO829, G-361, HCT-116, COLO205, LoVo, WiDr, DLD-1, HCT-15, SW620, SW480, SW1116, HT-29, FHC, CCD841CoN, PC-3, LNCaPFGC, MDAPca2b, and DU145;

and a carrier.

Claim 68 (Previously presented): A pharmaceutical composition for treating lung tissue tumor cells in a human comprising whole human cells prepared by introducing into tumor cells from tumor cell lines selected from the group consisting of A549, NCI-H460 and NCI-H520 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope, and attenuating said cells by irradiation.

Claim 69 (Previously presented): A pharmaceutical composition for treating breast tissue tumor cells in a human comprising whole human cells prepared by introducing into tumor cells from tumor cell lines selected from the group consisting of MCF-7 and BT-20 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, and selecting for cells displaying an α Gal epitope, and wherein said cells are attenuated by irradiation.

Claim 70 (Previously presented): A pharmaceutical composition for treating pancreatic tissue tumor cells in a human comprising whole human cells prepared by introducing into tumor cells from tumor cell lines selected from the group consisting of HPAF-II, PANC-1, ASPC-1, and BxPC3 with a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, selecting for cells displaying an α Gal epitope, and attenuating said cells by irradiation.

Claim 71 (Previously presented): A pharmaceutical composition for treating ovary tissue tumor cells in a human comprising whole human cells prepared by introducing into tumor cells from tumor cell lines selected from the group consisting of IGROV, ES-2, NIH:OVCA3, and PA-1 a retroviral vector of SEQ ID NO:1, comprising an α (1,3) galactosyltransferase encoding sequence, and selecting for cells displaying an α Gal epitope, and wherein said cells are attenuated by irradiation.

Claim 72 (Previously presented): A pharmaceutical composition for treating melanoma tumor cells in a human comprising whole human cells prepared by introducing into tumor cells from tumor cell lines selected from the group consisting of A375, COLO829, and G-361 a

retroviral vector of SEQ ID NO:1, comprising an α (1,3) galactosyltransferase encoding sequence, and selecting for cells displaying an α Gal epitope

Claim 73 (Previously presented): A pharmaceutical composition for treating colon tissue tumor cells in a human comprising whole human cells prepared by introducing into tumor cells from tumor cell lines selected from the group consisting of HCT-116, COLO205, LoVo, WiDr, DLD-1, HCT-15, SW620, SW480, SW1116, HT-29, FHC, and CCD841CoN a retroviral vector of SEQ ID NO:1, comprising an α (1,3) galactosyltransferase encoding sequence, and selecting for cells displaying an α Gal epitope .

Claim 74 (Previously presented): A pharmaceutical composition for treating prostate tissue tumor cells in a human comprising whole human cells prepared by introducing into tumor cells from tumor cell lines selected from the group consisting of PC-3, LNCaPFGC, MDAPca2b, and DU145 a retroviral vector of SEQ ID NO:1 comprising an α (1,3) galactosyltransferase encoding sequence, and selecting for cells displaying an α Gal epitope.

Claims 75-84 (Canceled).

Claim 85 (Previously presented): A therapeutic pharmaceutical composition produced by the method comprising:
obtaining a collection of live human tumor cells from human tumor cell lines;

transforming said cells with a nucleotide sequence which encodes upon expression $\alpha(1,3)$ galactosyltransferase, so that said $\alpha(1,3)$ galactosyltransferase synthesizes an α galactosyl epitope on a plurality of cell surface glycoproteins on said cells;

collecting said tumor cells to form a mixture of cells with a plurality of glycoproteins having an α galactosyl epitope; and

attenuating said cells by irradiation.

Claims 86-98 (Canceled).

Claim 99 (Previously presented): A therapeutical composition for inhibiting tumor growth in humans, comprising:

a mixture of attenuated whole human tumor cells, derived from A549 cells, said cells comprising an $\alpha(1,3)$ galactosyltransferase encoding sequence and a plurality of cell surface glycoproteins or glycolipids on which an α Gal epitope is present and wherein said cells are attenuated by irradiation and

a carrier.

Claim 100 (Previously presented): The therapeutic pharmaceutical composition of claim 1 comprising a mixture of attenuated whole human cells comprising tumor cells from two or more human tumor cell lines.

Claim 101 (Previously presented): The pharmaceutical composition of claim 67 comprising a mixture of attenuated whole human cells comprising tumor cells from two or more human tumor cell lines.